

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of)
)
PUBLIC UTILITIES COMMISSION)
)
Instituting a Proceeding to)
Investigating Distributed Generation)
in Hawaii)
_____)

PUC Docket 03-0371

PUBLIC UTILITIES
COMMISSION

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LIFE OF THE LAND'S

RESPONSES TO PUBLIC UTILITIES COMMISSION
INFORMATION REQUESTS (LOL RIRs/PUC-IRs)

&

CERTIFICATE OF SERVICE

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PUC-IR-1 Do Hawaii electric utilities have authority under existing statutes and franchises to own DG either directly or through an affiliate? If yes, please identify the specific statutes and franchises which authorize such activity. If no, please describe whether existing laws should be altered to permit utility ownership (either directly or through an affiliate) and if so, what changes are needed?

Answer: This question is complex and deserves a substantial answer. All of our answers to the PUC Information Requests will deal with non-substation cited DG.

(A) There is no section of existing laws, statutes and/or franchises that specifically gives the utilities the authority to enter into the DG market. Furthermore, there are specific administrative/court decisions in Hawaii¹, Louisiana² and New Mexico³ that appear to prevent the utility from directly owning and operating DG.

(B) Currently a free market exists for the installation of DG. In HECO's CHP Application, HECO proposes that the utilities would handle over 80% of the developing CHP market. The DOJ uses the Herfindahl-Hirschman Index (HHI) to measure the concentration of markets and of monopolistic power. A market of 1000-1800 is moderately concentrated, and over 1800 is highly concentrated. The HHI for the Hawaii CHP market, as envisioned by HECO, would exceed 6000. Thus monopolistic conditions would exist.

(C) This answer must also be considered in light of several sections of the Hawaii Revised Statutes:

§480-4 Combinations in restraint of trade, price-fixing and limitation of production prohibited. (a)

¹ Hawaii Supreme Court in *In re Wind Power Pacific Investors-III*, 67 Haw. 342, 686 P.2d 831 (1984). Upheld PUC Decision and Order re Docket No. 4779. See: COM-RT-1 & Responses by the Gas Company to Life of the Land. LOL-SOP-IR-51

² Louisiana Public Service Commission Declares Cogeneration Facility Jointly Owned by a Utility Affiliate and a Manufacturing Company Not a Public Utility. by Robert Olson. See: (1) PMA OnLine Magazine: 05/99; (2) www.retailenergy.com/statelin/9905olsn.htm; (3) Exhibit COM-R 101

³ New Mexico Supreme Court Opinion Number: 1998-NMSC-017 (March 18, 1998. Appeal of Docket No. 24,007 consolidated with 24,008. In the Matter of the Application of PNM Electric Services v. New Mexico Public Utilities Commission. <http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=nm&vol=98sc-017&invol=2>

Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce in the State, or in any section of this State is illegal.

§480-5 Requirements and output contracts; tying agreements. No person shall sell or buy any commodity, or fix a price or discount from, or rebate upon, such price, on the condition, agreement, or understanding that the other person or persons shall not deal in the commodity of a competitor of the seller, or shall not deal with the competitor of the purchaser, as the case may be, when the effect of the sale or purchase or the condition, agreement, or understanding, may be to substantially lessen competition or tend to create a monopoly in any line of commerce in any section of the State. [L 1961, c 190, §3; Supp, §205A-3; HRS §480-5]

§480-9 Monopolization. No person shall monopolize, or attempt to monopolize, or combine or conspire with any other person to monopolize any part of the trade or commerce in any commodity in any section of the State. [L 1961, c 190, §7; Supp, §205A-7; HRS §480-9]

(D) If a fair market is to exist, then the utilities must establish utility subsidiaries or holding company subsidiaries to enter the market. That, in fact, was the reason the utility gave to the PUC in creating HEI. HECO stated in publicly filed documents that alternative energy projects could be done better and more efficiency in the private, unregulated, sector.

(E) Life of the Land believes that utilities must have a solid firewall between its utility and non-utility operations. We prefer no utility ownership of DG, as we made clear in PUC DN 96-0493:

"In order for competition to gain a foothold, the condition that no electric producer can own the grid is imperative. HECO should offer a stock-split. Failing that, the PUC should mandate a stock-split. Each shareholder would get one share in a energy producing company and one share in an energy transmission company. Energy producing companies could not, in any way, shape, or form, own any part of any transmission company, even if the energy producing company and the energy distribution company are in different markets." Life of the Land: Final Position Statement. page 4 PUC Docket 96-0493. Proceeding on Electric Competition. October 15, 1998.

(F) Preventing Market Power: Testimony by Mr. Lazar describes the "discriminating monopoly"

problems that could arise if electric utility companies or their affiliate companies are allowed to compete in DG markets. DG market power abuses have been suggested in Hawaii by the former intervenors in this proceeding, Pacific Machinery and Johnson Controls, along with Noresco in their letter of concern to the Commission dated July 1, 2003. COM-T-1

(G) The Consumer Advocate notes: "The Non-Utility Parties fear Hawaii's Utilities have a tremendous competitive advantage that could adversely affect the effective deployment of DG in Hawaii ... The concern that Utilities could effectively discourage DG participation by others through onerous interconnection requirement and time delays, high DG stand-by charges and penalties, or discounting the rates charged potential DG customers through customer retention contracts so as to prevent Non-Utility customer-sited DG from being installed. If allowed to Provide Customer-Sited DG Service as a regulated utility service, will Hawaii's electric Utilities have an unfair competitive advantage over third-party vendors? No" CA-RT-1 pages 21-23.

(H) The Consumer Advocate's position assumes that unfair practices can easily be identified and eliminated. This approach ignores more subtle ways of using anti-competitive actions.

(I) *The US Federal Energy Regulatory Commission (FERC)⁴ analyzed the problem of anticompetitive behavior in the fight over open access of transmission lines (1995)*

In today's electric industry, which is dominated by vertically integrated utilities, an owner or controller of transmission service can exclude generation competitors from the market, thereby favoring the transmission owner's own generation. This can occur through outright denial of transmission access, or, as is more likely, through access that is discriminatory as to rates, terms or conditions of service. ...

However, because utilities are naturally profit maximizers and monopoly suppliers to their native load, the vast majority of transmission owning utilities have not agreed to give up their market power

⁴ Promoting Wholesale Competition Through Open Access Nondiscriminatory Transmission Services by Public Utilities Docket No. RM958000. Recovery of Stranded Costs by Public Utilities and Transmitting Utilities Docket No. RM947001 NOTICE OF PROPOSED RULEMAKING AND SUPPLEMENTAL NOTICE OF PROPOSED RULEMAKING. March 29, 1995 www.emanifesto.org/FERCNOPR/FERCiid.htm

voluntarily. Transmission owning utilities have an incentive to deny access either by not filing any open access tariff or by filing a tariff that offers services inferior to those used by the transmission owner. ...

In the past, transmission owning utilities have discriminated against others seeking transmission access. Transmission owning utilities have denied access by outright refusals to deal. While such actions tend to be rare, likely because transmission owners fear they may trigger antitrust action, they have occurred.

More often, however, discrimination is likely to be manifested more subtly and indirectly. One such way would be for transmission owners to adopt a negotiating strategy that involves a sequence of informational and other requirements over a protracted period of time.

By the time all of the requirements are finally satisfied, the window for the customer's trade opportunity has closed. Another way of frustrating access is to substantially change the terms of negotiated agreements through protracted delay, including filings with regulatory agencies.

Another way for transmission owning utilities to frustrate access and competition is to allow access, but only on non-comparable or unsupportable terms and conditions that are inferior to the conditions under which the transmission owners themselves use or could use the transmission grid or on terms and conditions that have no operational or financial basis. ...

As the wholesale power markets become more competitive, delayed access becomes a matter of increasing concern. ...

(J) FERC⁵ (1996) further analyzed anti-competitive behavior:

"We conclude that unduly discriminatory and anticompetitive practices exist today in the electric

⁵ 75 FERC 61,080 Promoting Wholesale Competition Through Open Access Services by Public Utilities. Recovery of Stranded Costs by Public Utilities and Transmitting Utilities. Docket No. RM95-8-000. Docket No. RM94-7-001. Order No. 888. Final Rule. (Issued April 24, 1996) www.converger.com/FERCNOPR/FERC888ivb.htm

industry and, more importantly, that such practices will increase as competitive pressures continue to grow in the industry, unless the Commission acts now to prevent such practices. 257/ It is in the economic self-interest of transmission monopolists, particularly those with high-cost generation assets, to deny transmission or to offer transmission on a basis that is inferior to that which they provide themselves. The inherent characteristics of monopolists make it inevitable that they will act in their own self-interest to the detriment of others by refusing transmission and/or providing inferior transmission to competitors in the bulk power markets to favor their own generation, and it is our duty to eradicate unduly discriminatory practices. As the AGD court stated: 'Agencies do not need to conduct experiments in order to rely on the prediction that an unsupported stone will fall.' 258/

... As we explained in detail in the NOPR, transmission-owning utilities have discriminated against others seeking transmission access in a variety of ways, most often subtly and indirectly. 260/ For example, delaying tactics have been used to frustrate access. ...

Many of the examples of discriminatory actions we are seeing in the electric industry are similar to those we saw in the gas industry. Given our experience, we find that these examples of discriminatory actions are credible and well-founded. Thus, we conclude that there is more than sufficient reason to believe that transmission monopolists currently engage in unduly discriminatory practices, and that they will continue to engage in unduly discriminatory practices, unless we fashion a remedy to eliminate their ability and incentive to do so. In light of the competitive changes occurring in today's electric industry, we believe that the only effective remedy is non-discriminatory open access transmission, including functional unbundling and OASIS requirements, and that it is within our statutory authority to order that remedy."

(K) The United States Department of Justice recognizes the problems of monopolies and anticompetitive behavior⁶:

"It is common these days to talk about the 'telecommunications revolution' and how it is transforming our lives. Indeed, the changes in the past ten years have been breathtaking. Services that were novel a decade ago are taken for granted today. None of us thinks twice, for example,

⁶ DEPARTMENT OF JUSTICE. PROMOTING COMPETITION IN TELECOMMUNICATIONS. Address by ANNE K. BINGAMAN. Assistant Attorney General, Antitrust Division, U.S. Department of Justice. Before The National Press Club. Washington, D.C. February 28, 1995 www.usdoj.gov/atr/public/speeches/telecomp.htm

about faxing a document across the country -- or around the world. Cellular phones, cable television, a choice of long distance carrier -- all are a part of everyday life in the United States. America is the world leader in this revolution in no small part because we were the first nation to commit to opening our telecommunications markets to competition, which we did when we dismantled AT&T's vertically integrated telephone monopoly. We should not forget, however, the hurdles that effectively slowed competition before the success in 1982 of the Justice Department's antitrust suit.

Long after competition in long distance service and communications equipment became technologically and economically feasible, AT&T frustrated consumer choice and actual competition through abuse of its monopoly control over local networks. ...

Competitors detected AT&T's anticompetitive conduct and fought it in the courts and before regulators. The result more often than not was one step forward, one step back -- incremental progress that rarely could keep up with AT&T's ability to find new ways of impeding access to the local networks or disadvantaging other equipment manufacturers. ...

AT&T succeeded in imposing such burdensome conditions on the interconnection of non- AT&T equipment that evidence of those conditions was an important part of the monopolization case that the Justice Department presented in 1981. As long as AT&T controlled the strategic bottleneck of a local telephone monopoly, litigation and regulation could not hope to promote free competition in long distance and equipment markets or protect captive ratepayers from inflated prices.

Indeed, the problem was related partly to the nature of regulation itself. With regulation constraining rates in the local market, AT&T had the incentive to use the local monopoly to increase profits in the long distance and equipment markets. As long as consumers had no choice of local service provider, structural separation that prevented the regulated monopolist from participating in the other markets was necessary to prevent the abuses that plagued the industry and thwarted competition.

Regulators and would-be competitors were not the only ones stymied by the problem of the AT&T telecommunications monopoly. The Justice Department sued AT&T twice, in 1913 and in 1949, before bringing the suit that resulted in the MFJ. Those first two efforts to protect competition in telephone

markets ultimately failed, because the relief obtained was not comprehensive enough.”

(L) The issue is whether there should be utility/third party ownership, versus only third party ownership. Very subtle and indirect delaying tactics could and have been used by utilities to favor their system over third party systems. Delaying tactics are actions that are intended to make something happen more slowly, in order to gain an advantage. It is not hard to find these tactics. For 6 months HECO knows they have a DSM Status Report to file with the PUC. Other parties which have to sign the document, such as Life of the Land, are shown the document a day or so before it is due. Filings of important documents seem to increase around the holidays. Comment periods on important environmental documents occur during Thanksgiving and Christmas. The 20-day period for filing a Motion to Intervene in the current HECO Rate Case includes Thanksgiving Day. Independent Power Companies are asked to install interconnection devices which have not been used anywhere in the US for 15 years. Negotiations stall while the utility takes 2 years to review their own document. The utility requests a docket on standby charges or exit fees before addressing the installation of a third parties system.

Assume that you are a customer and you want to install CHP. The utility can install it quickly. The utility could spend months and years pouring over interconnection agreements for a third party system. Historically, if the third party brings the issue to the Commission for resolution, the Commission sends it back to the parties for more discussion. Delay is a tactic of slowing down a decision-making process in order to maintain the status quo, that is, a world where the utility dominates.

(M) The CA states: "It appears that some Parties are under the impression that the creation of a separate non-regulated subsidiary to provide utility owned and operated customer-sited DG will ensure the creation of a level playing field. At first blush, the Parties' recommendations may appear reasonable." CA-RT-1, page 24

Life of the Land's position is that a separate non-regulated subsidiary may own and operate DG, BUT UNDER NO CIRCUMSTANCE does this imply that the independent subsidiary to going to act as a salesperson for utility owned and operated systems. The whole purpose of the creation of an independent subsidiary is to REMOVE all DG ownership and operations FROM the utility.

PUC-IR-2 Are there any changes required to existing statutes, rules, or regulations to facilitate non-utility ownership of DG facilities?

Answer: Yes. In order for a competitive DG market to exist, DG companies need to know the rules of the game, that is, to know that if they do x, y, and z, that they will be able to establish DG facilities. While negotiations between DG companies and the utility are occurring the utility is making money and the DG company is losing money. Long, protracted, drawn-out legal battles, without any guidance on time limits or ultimate success force many to drop out or not to enter the market in the first place. Having formal rules enables all players to know that they are playing with the same rules, that a fair market exists. It is very important that if negotiations drag out, that the PUC step in and resolve the issue. Processes that take 4-6 years should be replaced by processes that guarantee success or failure in less than a year.

PUC-IR-3 What is the impact of Hawaii's net energy metering law, codified at HRS § 269-101-111, (and recently amended this past legislative session to allow eligible systems of up to 50 kW to sell excess energy to the utility) on customer decisions to invest in DG? Should the existing 50 kW size limitation be increased to facilitate DG? Should the existing net energy metering law be expanded to include technologies other than those specified in the statute? Please identify any other changes that should be made to net metering laws, and why?

Answer: The existing net metering law covers commercial and residential customers who own and operates a solar, wind turbine, biomass, or hydroelectric energy generating facility, or a hybrid system consisting of two or more of these facilities. This list should be expanded to include all forms of renewable energy and distributed generation, excluding.

Hawaii can and should become the petrie dish for innovative technologies to meet our energy needs. These technologies can include wind, solar-thermal, solar-electric, wave (buoy), tidal, ocean thermal (OTEC), sea water air conditioning (SWAC), hydrological, pumped storage, biomass, energy efficiency devices, daylighting, combined heat and power (CHP), green fuel cells, batteries, compressed air, flywheels, hybrids, peak shaving, load leveling, and others.

Regulatory policy should encourage an Energy Portfolio (containing diverse and dispersed energy sources) of clean energy sources (pollution prevention is superior to a pollute and cleanup regulatory scheme).

PUC-IR-4 Should the Commission define DG - and if so, how should it be defined? Should the definition be flexible or specific as to size and technology? Should the definition identify “eligible” technologies - and if so, how would such a list be derived? Or should the definition be sufficiently flexible to apply to a range of DG technologies, both those currently feasible as well as those not yet developed?

Answer: Distributed Generation refers to “generation” that is “distributed” or “dispersed”. Distributed Generation refers to the location of generation and its proximity to load. Distributed Generation does not refer to size or technology.

PUC-IR-5 Should the definition of DG include DER, “distributed energy resources” and other demand side technologies or systems?

Answer: Distributed Generation (DG) is a part of Distributed Energy Resources (DER). DER is the broader term. DER refers to all methods located at or near demand that are or can be used to decrease the need for central station generation. Thus DSM & DG are both parts of DER.

PUC-IR-6 Should the Commission draw a distinction between “small scale” DG and other DG resources and if so, why? How should “small scale” DG be defined? What benefits can small scale DG offer (e.g., firm power, increased reliability, reduce transmission constraints) and what impacts does it have on the system?

Answer: The Commission may choose to draw the distinction between small-scale and large-scale; between on-site and near-site; and between commercial, residential, and substation sited. Small scale is dependent upon the size of the system, the line capacity, etc.

PUC-IR-7 Please comment on HECO’s listed criteria (see e.g. Seki Testimony at 20) for determining whether a DG technology is “viable and feasible” for Hawaii. Should other factors be

considered as well?

Answer: Yes, additional factors are needed: (1) Economically Sustainable (keeping money circulating within the state, that is, minimizing the export of money); (2) Environmentally Sustainable (minimizing toxic emissions into the environment); and (3) Globally Sustainable (minimizing greenhouse gas emissions)

Using the list provided by HECO, Fossil Fuels (which cause pollution, global warming, and export cash from the state) are feasible and viable (even though they may cause run-away global warming) while Renewable Energy (which promotes sustainability) are not feasible and viable. Adding Economic, Environmental and Globally Sustainability into the equation corrects this imbalance.

Renewable Energy (RE) and Distributed Generation (DG) are disruptive technologies which will fundamentally change the electric industry. This transformation will change the world during the next few decades. Hawai'i's energy planning should be robust enough to ride this tidal wave of change.

Global warming is a very serious issue. Oceania is on the front line of global warming impacts. Islands will be directly impacted from rising sea levels, salt water intrusion into drinking water aquifers, and an increase in the number and severity of storms. Hawai'i is perfectly situated to help our neighbors by providing clean renewable energy.

The Kyoto Protocol calls for a trading system for greenhouse gas emissions (GHGE). Polluting industries will have to purchase pollution rights from clean energy sources. This approach will provide a financial boost to those areas, like Hawai'i, which can serve as Renewable Energy meccas.

Renewable Energy (RE) and Distributed Generation (DG) help diversify and strengthen all sectors of society. Money ripples through the economy instead of being exported. New business and labor opportunities open up. New technologies are researched and built for both the local and the export markets.

The list of feasible and viable technologies needs to reflect the promotion of technologies which

support sustainability.

PUC-IR-8 Have the “multiple benefits” of DG cited in Life of the Land’s testimony (Wooley at 2) ever been quantified for Hawaii as they have in the other states mentioned in the testimony and if so, where can this information be found?

Answer: Individual benefits have been analyzed within the state. These include economic impacts (GDS), environmental impacts from oil spills (DBEDT), and price volatility (DBEDT).

During the 2000 Legislative Session, a concern of some Legislators was whether a RPS would increase electricity costs to ratepayers, adding to Hawai`i’s already high rates. DBEDT asked GDS to determine at what percentage a RPS for Hawai`i would be practical and cost effective in comparison to the current utility IRPs. GDS developed a computer spreadsheet-based cost model for the purpose of evaluating potential renewable portfolio standards. The model calculates annual costs of producing electricity to meet each utility’s annual requirements for a period of twenty years (2001-2020).

The GDS Study found that Hawai`i would spend \$3.172B on energy from 2001-2010. Hawai`i would save \$43M by switching to 10.5% renewables. Analysis of Renewable Portfolio Standard Options for Hawaii. (March 2001). Submitted to the State of Hawaii Department of Business, Economic Development & Tourism by GDS Associates, Inc. (“GDS”)

Unfortunately, the GDS analysis was lacking in our view, because it assumed that the cost of oil was \$25/barrel, that balance of trade impacts were irrelevant and that environmental externalities don’t count. When all factors are factored in, renewables win outright.

PUC-IR-9 Please identify any additional information provided in response to any party’s Information Requests or filed in other dockets that provides further documentation or evidence of: (a) whether there are transmission, distribution generation constraints which could be served by DG; (b) the extent to which load growth is driving the need for distribution system enhancements; (c) where DG should be located to be most effective (and documentation for this conclusion); and (d) the availability or feasibility of alternative technologies. To the extent that your testimony or prior responses do not already provide sufficient detail on these issues, please supplement your testimony

with information on the above points.

PUC-IR-10 Please identify with specificity the type and size of DG that can be currently deployed in Hawaii to maximize the benefits and minimize costs.

Answer: O`ahu can support 1600 MW of renewable energy, energy conservation, energy efficiency, and demand side management projects including, but not limited to, wind, solar-thermal, solar-electric, wave (buoy), tidal, ocean thermal (OTEC), sea water air conditioning (SWAC), hydrological, pumped storage, biomass, energy efficiency devices, daylighting, combined heat and power (CHP), green fuel cells, batteries, compressed air, flywheels, hybrids, peak shaving, and load leveling policies.

Minimizing costs should refer to minimizing total costs. Total cost calculations means accounting for financial, environmental, balance of trade, and global gas emissions impacts. The benefits are maximized and the costs are minimized when the planet survives. At the current rate of global warming, this is problematic. We must transform Hawaii into a renewable energy Mecca.

Interestingly, Hawai`i has the most to gain under a "cap and trade" system for CO2 emissions. Hawai`i is the ideal place for renewables, and other businesses and states would wind up paying for our renewable energy credits. This would further increase the differential between the cost of oil and renewable based electricity.

PUC-IR-11 Identify with specificity existing environmental requirements which would impact the installation of DG and how this would occur? Are there any other regulatory requirements - e.g., Building Codes or zoning laws that would impact installation of DG and if so, identify these with specificity.

Answer: When fossil fuels are correctly priced (either through greenhouse gas emission and environmental externalities taxes or a cap/trade system), and when renewable energy producers can play on a level playing field, then there will be an rapid increase in the deployment of DG. The other regulatory requirements are not as significant in the successful deployment of DG systems.

Maui County's testimony and rebuttal testimony offers a detailed analysis on time-of-use rates. Life of the Land endorses this approach. As Maui noted: The current rate design provides an incentive for customers to maximize their individual load factors, that is, to use power steadily 24 hours per day, 365 days per year. A time-of-use rate would encourage customers to use power sparingly during the priority peak hours of the day. The HECO/MECO/HELCO rate designs do not do this. COM-R-2

PUC-IR-12 What are the beneficial impacts of DG on the transmission and distribution ("T&D") system and more importantly, how may they be quantified and assessed for value?

Answer: The greatest value that DG has on a system is to reduce peak demand. Peak demand drives the need for more generation and more transmission systems. One way of quantifying the value of DG is by measuring its impact at decreasing the load during peak periods.

PUC-IR-13 What are the limits to the level of DG that the grid can absorb without adverse impacts? Please identify studies or other documentation in support of your response.

Answer: Energy Self-Sufficiency is a state policy and is found in both the Hawai'i State Constitution and the State Energy Plan. Energy Self-Sufficiency keeps money in Hawai'i supporting the local economy and providing a hedge against world disturbances.

Honolulu Advertiser Editorial: Hawai'i has an opportunity to teach the nation a lesson about energy self-sufficiency and the potential to wean ourselves from dependence on oil and other nonrenewable resources. (January 30, 2001)

If every customer had solar electric and solar thermal on their roof and a fuel cell in their basement, and if businesses had all that plus a combined heat and power system, and if everyone had a car that could plug into the house and send power in each direction, and all of this were interconnected, then the DG penetration level would be 100% and there might be less adverse impacts than the current system. This dispersed web of energy supplies will be installed in the next few decades. In 50 years this analysis will look like ancient history.

If the PUC is more concerned about a realistic penetration level today (or in 5 years or 10 years); on

Oahu (or Maui or Moloka`i); using CHP (or DG); providing base load (or cycling or peaking) power; using small (small/medium) generators; then the penetration level would be highly dependent upon the nature and definition of DG that the PUC uses. Other determinants on penetration levels are the levelness of the playing-field (which will or will not encourage non-utility companies to enter the market-place) and analyzing all costs associated with DG.

PUC-IR-14 What are the limits of bi-directional power?

Answer: The limits of bi-directional power is highly dependent upon specific conditions that exist on each circuit.

PUC-IR-15 Should the design of new distribution feeders consider DG?

Answer: Yes. New distribution circuits should be designed based on the expected technological changes, rather than on extending a passé system.

PUC-IR-16 Can the concept of micro-grids be made practical? Can they be effectively utilized in Hawaii?

Answer: Maui Community College has an existing micro-grid. Life of the Land raised the issue of micro-grids in PUC DN 96-0493. We used the terms "Community Power Associations" and "Government Power Associations" to designate micro-grids with multiple renewable energy systems which would interface with the T&D grid. Life of the Land: Initial Submission. page 4 PUC Docket 96-0493. Proceeding on Electric Competition. March 29, 1997.

PUC-IR-17 Should utilities be offered incentives to facilitate DG?

Answer: The only incentives that are needed is a fair market with a level playing field. In the ideal world, this would mean separating the utility into two completely separate companies, one of which would be regulated, as Life of the Land envisioned in Docket 96-0493:

"In order for competition to gain a foothold, the condition that no electric producer can own the grid

is imperative. HECO should offer a stock-split. Failing that, the PUC should mandate a stock-split. Each shareholder would get one share in a energy producing company and one share in an energy transmission company. Energy producing companies could not, in any way, shape, or form, own any part of any transmission company, even if the energy producing company and the energy distribution company are in different markets.” Life of the Land: Final Position Statement. page 4 PUC Docket 96-0493. Proceeding on Electric Competition. October 15, 1998.

PUC-IR-18 How can utility distribution practices be modified to enable DG to provide distribution deferral and be compensated for it?

Answer: Life of the Land is studying this issue and will review other parties responses. At this time, Life of the Land has no position on this issue.

PUC-IR-19 If utilities are permitted to own DG through affiliates, are any changes required to existing statutes, rules and regulations governing affiliates to guard against cross subsidization, to protect ratepayers and ensure competition between affiliates and non-affiliates on equal footing? Please identify potentially applicable statutes, rules and regulations and specify necessary changes.

Answer: Life of the Land assumes that affiliate means a financially independent HECO subsidiary or financially independent sister company with the HEI family (HEI Subsidiary). This assumes that the affiliate has wholly separate financial books and a firewall between it and the utilities operations.

While Life of the Land favors a stronger separation between the grid operator and generators, a minimum requirement is that there is a strong firewall between the utility and the DG affiliate, and that the requirements are detailed in administrative rules. The rules should be detailed and spell out requirements, penalties, and enforcement.

“In order for competition to gain a foothold, the condition that no electric producer can own the grid is imperative. HECO should offer a stock-split. Failing that, the PUC should mandate a stock-split. Each shareholder would get one share in a energy producing company and one share in an energy transmission company. Energy producing companies could not, in any way, shape, or form, own any

part of any transmission company, even if the energy producing company and the energy distribution company are in different markets.” Life of the Land: Final Position Statement. page 4 PUC Docket 96-0493. Proceeding on Electric Competition. October 15, 1998.

PUC-IR-20 What costs are associated with DG interconnection to the distribution grid? (a) If a utility overhead line is fully depreciated and upgrades or replacements are needed for distribution interconnection, does the DG customer pay for the upgrade replacement cost? (b) Should a DG customer be required to pay for distribution system upgrades that would have otherwise occurred in the absence of a DG interconnection? (c) Should subsequent DG customers on a particular feeder line be responsible for costs applied to the first DG customer on the line? If so, what type of crediting mechanism should be put in place for the first customer? (d) What mechanism should be used for recovery of these costs (i.e., fixed vs. demand charges, marginal cost vs. average cost, etc...)

Answer: The majority of outages occur on the distribution system. While downtown Honolulu has a networked system of distribution lines, Waikiki has only a radial system. Waikiki’s energy security can be strengthened by networking the distribution lines, by installing on-site generation, and by providing islanding capacities.

Life of the Land has not yet analyzed allocation of costs and credits among parties. Life of the Land is studying this issue and will review other parties responses. At this time, Life of the Land has no position on this issue. We have excerpted two articles which go into some of the complexities of this issue:

Transmission & Distribution World⁷: “Except in the downtown area of large cities, distribution systems in the United States tend to be simple radial feeders because these are the most economical to operate and protect. When a short-circuit fault occurs, only one fuse or breaker needs to operate to clear the fault. When there is only one source of power, the devices that operate autonomously using local intelligence assume this task. Even low-voltage networks in large cities assume unidirectional power flow in the supply feeders and actually can be more sensitive to DG than radial systems. In

⁷ Impact of DG on Reliability - Distributed Generation. Transmission & Distribution World. October 1, 2002 by Roger C. Dugan www.findarticles.com/p/articles/mi_m0CXO/is_2002_Oct_1/ai_93080521

either type of distribution system, the introduction of DG in sufficient amounts requires a more sophisticated protection system.”

United Kingdom Parliament⁸: “The development of renewable and other new generating technologies presents significant challenges to the transmission and distribution companies. Until the 1990s, generating plant had been increasing in size and migrating away from the distribution networks to the transmission system. This led to the distribution network operators’ (DNO) systems becoming passive in operation, simply providing a conduit from the transmission system to the customer. These passive systems have been designed for unidirectional power flows that are not naturally suited to the introduction of distributed generation. ... After privatisation, the trend towards ever larger generating stations ended. The early combined cycle gas turbine generators were much smaller than their coal and nuclear station predecessors and there was growth in the use of smaller combined heat and power (CHP) and renewables supported by the non-fossil fuel obligation. However, if CHP and renewables continue to grow in line with the Government’s targets and aspirations the challenge of connecting them to the grid will need to be met at a number of levels.”

PUC-IR-21 Should HECO’s, HELCO’s and MECO’s Rule 14.H on interconnection specific to DG be modified to further facilitate or encourage distributed generation? If so, please identify with specificity those aspects of Rule 14.H that must be changed? Should the same interconnection rules for DG apply to both the HECO companies and KIUC?

Answer: Rule 14.H has many sections which can be modified by either party. Excluding very recent changes at the PUC, there are no administrative rules or policies which indicate that this Rule will shorten or streamline the process, or level the playing-field. There is no evidence that the processing time and/or cost has been reduced. The existing approach still heavily favors the incumbent utility. Rule 14.H needs to be codified, along with specific time-frames, cost calculation measures, mediation/arbitration, enforcement and penalties.

PUC-IR-22 What has been the experience of the parties to date with interconnecting DG facilities

⁸ United Kingdom Parliament: Select Committee on Science and Technology”
www.parliament.the-stationery-office.co.uk/pa/ld200304/ldselect/ldsctech/126/4012802.htm

under either HECO's, HELCO's or MECO's Rule 14.H?

Answer: Life of the Land supports the approach taken by Maui County. Maui County notes: "The COM recommends the adoption of reasonable interconnection standards and procedures of DG systems by the Commission. We also recognize that we may have a role in establishing and enforcing interconnection standards in the future, especially with regard to small consumer energy appliances. For example, residential water heaters and air conditioners may someday be micro-CHP ("mCHP") units that produce electricity as a by-product of producing hot water and/or air conditioning. Interconnection for these mCHP and other "plug-and-play" energy appliances could be in the form of upgraded building codes, with inspection being done by county building inspectors. The COM will continue to monitor activities in this area and will work with the Commission and all concerned parties if this option materializes." COM-T-1

PUC-IR-23 Is the current allocation of distribution charges between customer, demand and usage charges adequate or should it be modified to accommodate DG? What is the appropriate allocation between utilities and ratepayers of revenues foregone as a result of the deployment of DG?

Answer: Life of the Land is studying this issue and will review other parties responses. At this time, Life of the Land has no position on this issue.

PUC-IR-24 Should credits be offered to customers or third parties that can defer the need for localized distribution expenditures. If yes, how should these credits be awarded, calculated and administered? And how should the cost of any credits or incentives be allocated and recovered by the distribution company?

Answer: Life of the Land is studying this issue and will review other parties responses. At this time, Life of the Land has no position on this issue.

PUC-IR-25 How can services be identified for unbundling and how should rates be calculated? Please comment on the viability of the Consumer Advocate's proposal for unbundling (Consumer Advocate Testimony, Witness Herz at 60-63). Will unbundling rates ensure that the utility recovers its cost of service from the customer benefiting from DG and does not shift costs to other ratepayers?

(See, e.g., Witness Herz, testimony at 23, 60)

Answer: Life of the Land has strongly advocated breaking down the component prices so that consumers can better understand what they are paying for.

“For electric customers to understand what they are buying, electric bills must be broken down so customers have an understanding of how much they are spending for each of (a) infrastructure; (b) generation; (c) transmission; (d) distribution; (e) metering; (f) billing; (g) surcharges; (h) taxes; (i) risk; and (j) other charges.” Life of the Land: Final Position Statement. page 4 PUC Docket 96-0493. Proceeding on Electric Competition. October 15, 1998.

The Consumer Advocate (Reference: Herz at 60-63) states: “Rate changes and unbundling should ideally be accomplished in a specific proceeding for that purpose. This should be done, however, in a manner that does not disrupt bundled rates used by the electric utility companies, and the Commission’s gradual approach in addressing inter- and intra-rate class subsidies.”

Life of the Land support this statement. We believe that the unbundling proposal advocated by Maui is the approach that should be adopted.

PUC-IR-26 Should the commission consider decoupling revenues from sales so that the utility is indifferent to installation of DG that has the effect of reducing sales?

Answer: Life of the Land wrote SB 2474 (2004) to accomplish this.

PUC-IR-27 Should the electric utilities institute termination charges (exit fees) for customers who install DG and if so how should they be designed?

Answer: Any termination or exit fees should apply only to the installation of on-site fossil fuel DG. If a customer installs on-site renewable energy there must not be an exit fee. In addition, there needs to be uniformity in the approach on dealing with customers who decrease their load. Currently if a Big Island customer turns off their electric systems (conservation) there is no utility reaction. If the customer reduces demand through a DSM measure, they are rewarded by the utility. If they install

on-site generation, then an exit fee will be imposed. In all three cases the customer has decreased their need for electricity from the grid, yet the three approaches has resulted in three different utility reactions.

PUC-IR-28 Should standby rates similar to those implemented by HELCO (see Decision and Order No. 18575, filed on June 1, 2001, in Docket 99-0207) be adopted by HECO or MECO? Is the flat fee standby charge used by KIUC an appropriate approach for other utilities? Or should the Commission repeal and prohibit standby charges?

Answer: Life of the Land supports the approach taken by Maui County. A variety of stand-by services should be offered so customers only have to purchase what they need.

Maui County: "Standby service is the provision of electricity by the utility to customers with on-site generation during periods when their own generation is unable to meet their on-site power needs. Standby service is important so that customers building their own generating facilities do not also need to build seldom-used backup generators. The customers receive continuous service, either from their own resources or from utility resources. Since they only use utility resources a portion of the time, the utility can use those resources for other customer needs as well." COM-T-2

PUC-IR-29 Please provide comments on the issues below related to standby service proposals. (a) To the extent that standby rates are implemented (for those utilities that do not have them) or modified, should demand subscription or non-firm standby rates be included? Please comment on the viability and desirability of a non-firm or "best efforts" standby service (see e.g. County of Maui testimony, Witness Lazar at 78) (b) Should regulated utilities be required to charge themselves or their affiliates the same standby charges with respect to the regulated utility or affiliate owned, operated and maintained DG facilities? (c) Should standby rates be the same for all Hawaii electric utilities including KIUC? (d) Should supplemental service be distinguished from stand-by service and if so, should supplemental service continue to be charged at the otherwise applicable tariff?

Answer: In general, Life of the Land supports the approach taken by Maui County. Regulated Utilities must not, under any condition, discriminate between independent and captured DG providers. This non-discrimination must apply to the length of time it takes to handle the paperwork,

the level of scrutiny, the cost, etc., given to the proposal.

PUC-IR-30 Please describe the electric utilities' current policies regarding "hook up fees" or impact fees. Should existing policies regarding hook up fees be revised so as to remove barriers to development of distributed generation? Please comment on the County of Maui's proposal regarding impact fees. (see discussion County of Maui Testimony; e.g., Kobayashi at 12; Lazar at 18-19, 33)

Answer: Life of the Land supports the approach taken by Maui County. Kobayashi: Hookup Fees and Credits: Electrical service to new customers is subsidized by existing customers because new power plants are much more expensive than existing units that form the basis of rates. Since DG has no comparable subsidy from electric utilities, DG is at a competitive disadvantage to conventional electric utility services. Additionally, since new electric facilities cost more than existing facilities, electric rates rise as new customers are added to the grid system. Therefore, we recommend that hook-up subsidies be discontinued. We feel that discontinuing impact fee subsidies will result in new developments that are more energy efficient and more likely to incorporate DG. Existing electric utility customers will see significantly less rate increases and the new electric utility customers will experience lower operating costs and long term savings.

PUC-IR-31 Should a systems benefit charge be adopted to recover costs of distributed generation? If yes, how should such a charge be established?

Answer: Life of the Land supports the approach taken by Maui County. Kobayashi: "Standby Rates: Appropriately priced standby rates are important for creating a level playing field between DG and conventional electric utility services. Since MECO does not have standby rates for its DG customers, the COM recommends firm and "best efforts" standby rates. We feel that our recommended standby rates appropriately address differing consumer needs and that they are reasonable for both the electric utility and its DG customers." T-1

PUC-IR-32 Will an inverted block rate design (see e.g. County of Maui, Witness Kobayashi at 12, Lazar at 86) result in better allocation of costs of new DG facilities? What are other benefits of inverted block rate design (if any) with respect to promoting DG?

Answer: Life of the Land supports the approach taken by Maui County. Kobayashi at 15: “Rate Designs: Rate designs have an important impact on consumer usage patterns and on consumer investment decisions for DG and DER. For example, if residential customers had an inverted block rate design (i.e., the more you use the more you incrementally pay), as is the practice with the COM’s water rates, then residential customers would be financially encouraged to reduce excessive consumption and incentivized to invest in DG and DER. Therefore, the COM recommends that the Commission establish incremental cost pricing rate designs for residential and commercial electric utility customers, and eliminate the current declining block rate for schedules J and P in favor of time of use rates.”

Kobayashi: “The inverted rate will stimulate solar photovoltaic system construction, if the upper block is high enough to make such systems cost-effective. It might also facilitate the development of distributed energy resources, such as solar water heat.” HECO/Maui-DT-IR-30

Lazar at 93,94: “Minimizing the customer charge, which applies regardless of usage, preserves the revenue requirement to be reflected in the usage charge. MECO already does this to some extent, having a customer charge that is lower than it’s own estimate of either marginal or embedded customer costs. (In Docket 96-0040, I examined MECO’s customer costs, and found that the appropriate level of customer charge based on embedded costs was about 20% lower than the then-approved level.) An inverted rate design, that provides all customers with an initial block of usage at one price, with additional usage priced at a higher price reflecting the cost of new resources is another option. Because of the relatively high on-peak coincidence factor associated with electric space heat and air conditioning, I believe that a rate inversion at the 300 - 500 kWh/month level would be appropriate for MECO. Customers without air conditioning and with solar water heaters would not cause this peak demand, and would not experience this rate inversion. I believe this would be less expensive than implementing time-of-use rates for the residential sector, an action that would require an expensive investment in new meters.”

PUC-IR-33 How should costs associated with DG be recovered? (a) How should the costs of fuel purchased for utility owned, customer site DG facilities be handled? Should it be included in the energy rate adjustment clause applicable to all customers or recovered in some other manner? (b)

Should regulated utilities be permitted to include in their regulated rates the cost of DG equipment and its maintenance?

Answer: Regulated utilities should not be permitted to own or install DG. Installation of DG should be by non-utilities, which by definition, are not under the purview of the PUC.

PUC-IR-34 How should the existing IRP process and the deployment of DG be synchronized to maximize the benefits of DG?

Answer: Integrated Resource Planning (IRP) is designed to account for at ALL supply-side and ALL demand-side options. Thus, in the ideal world, DG should be part of the IRP. IRP is designed to look at the long-term view (20-years). An obvious problem is that DG was minimized in HECO's recent IRP-2, strongly indicates that IRP is more focused on planning using a rear view mirror, that is, in evaluating how old technology fits into future plans.

Life of the Land strongly supports Maui County's proposal: "the County of Maui recommends that the Commission open a rulemaking proceeding to conduct a comprehensive review of the IRP process and to establish rules that address DG, DSM, and competitive bidding." COM-T-1

Life of the Land feels that the position adopted by the Consumer Advocate does not go far enough in developing a sound roadmap: "This proceeding is to establish the policy and framework for the deployment of cost-effective DG in Hawaii. ... These policies should, however, remain fairly general to allow determination of key implementation issues on a case by case basis." (CA-RT-1 pages 6-7) This is precisely what is not needed. The community, environmentalists, businesses, independents, etc., want ground-rules.

Life of the Land believes that the IRP process needs to be codified. The plan needs to provide a firm direction towards the future. The codified sections of IRP can include incentives, penalties and enforcement mechanisms.

Actual future utility plans may differ from the IRP Action Plan, but the presumption in those utility dockets should be that the Action Plan will be followed. The utility should have to show, with a higher

degree of proof, why the Action Plan needs to be changed.

The codified rules should state how Advisory Committee members are chosen; how the Advisory Committee co-chair is elected; how the committee is run; how the agenda is set; how minutes are kept; etc. The Advisory Committee should be able to offer one or two alternative plans which can than be included with the half-dozen plans utility plans which are evaluated.

Dated: November 25, 2004

A handwritten signature in cursive script, reading "Henry Q. Curtis", is written over a horizontal line.

Henry Q Curtis,

Vice President for Consumer Issues

Certificate of Service

I hereby certify that I have this date served a copy of the foregoing Reply to PUC Information Requests Docket Number 03-0371, upon the following parties. Life of the Land hand-delivered the Original plus 10 copies to the PUC; 3 copies to the Consumer Advocate. Life of the Land mailed 2 copies to Alan M. Oshima, Esq. (KIUC); and 1 copy to each of the other parties. In addition, one copy was emailed to each party.

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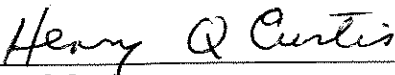
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